> RECEIVED CENTRAL FAX CENTER NOV 2 9 2006

## Remarks/Arguments:

Reconsideration of the application is requested.

Claims 1, 2-27, and 29-45 remain in the application. Claims 1, 11, and 14 have been amended. Claims 30-45 have been withdrawn from further consideration. Claims 2 and 28 were previously cancelled.

In the second paragraph on page 2 of the above-identified Office action, the drawings have been objected to under 37 CFR 1.83(a).

The Examiner alleges that the spools and the bundles must be shown or the features cancelled from the claims. The Examiner is respectfully informed that the spools and the bundles are not recited in the claims. Therefore, the objection to the drawings by the Examiner is baseless. Accordingly, the drawings have not been amended to overcome the objection to the drawings by the Examiner.

In the third paragraph on page 2 of the above-identified Office action, the drawings have been objected to under 37 CFR 1.83(a).

The Examiner alleges that the drawings fail to show the spools and bundles as described in the specification. Applicants respectfully disagree with the Examiner. More specifically, the specification recites a making-up device 4, which makes up or assembles the produced glass fibers or optical fibers 5 as fiber bundles 6 on take-up spools 7. Firstly, Fig. 1 is a side elevation and the bundles and spools are designated in this view. Therefore the additional bundle(s) and spool(s) would be into the paper, which cannot be shown in the side view. However, it is certain that a person with even a modicum of skill in the art would realize that Fig. 1 does represent spools and bundles in this manner. Therefore, sufficient structural detail is shown in the drawing for a proper understanding of the disclosed invention.

Furthermore, the bundles are not endless and the spools do not have infinite capacity. Therefore, as the fibers are manufactured the spools and bundles are replaced as required by the manufacturing process. It is easily recognized that this is another possibility for requiring spools and bundles. This is also shown in Fig. 1. Accordingly, as seen from the above-given comments, sufficient structural detail is shown in the drawing for a proper understanding of the disclosed invention.

In the last paragraph on page 3 of the above-identified Office action, claims 1, 3-27, and 29 have been rejected as being indefinite under 35 U.S.C. § 112.

More specifically, the Examiner alleges that the terms "follow-up", "making-up", are not <u>defined</u> in the <u>specification</u> and have no art-recognized meaning. As will be seen from the following remarks, applicants respectfully disagree with the Examiner.

The term "follow-up device" is the translation of the German word Nachführvorrichtung from the provisional application of which the instant application claims the benefit of. This kind of device holds and guides the preforms in the heating bushes, as the examiner correctly states. However, the term Nachführen also connotes a correlation between the insertion of the preforms into the heating bushes and the drawing of the fibers, with the Nachführvorrichtung inserting the preforms into the heating bushes in such a way as to compensate for the material loss due to the melting of the glass fibers. In this sense, the device follows the material lost during the melting operation of the performs. Therefore, the Examiner's allegation on page 4 of the Office action that "the follow-up device does not appear to follow anything", is not accurate.

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Furthermore, as already noted in the previous responses, the follow-up device is defined on page 1, lines 12-23 and on page 29, lines 10-26. On page 29 it is disclosed that the follow-up device includes a supporting plate 13 that is guided in a guide 14 through the use of a driving spindle, preferably through the use of a ballscrew, and is driven by a geared motor. Therefore, the follow-up device is defined in the specification. Also, patent law permits applicants to be their own lexicographers. See, i.e., Fromson v. Advance Offset Plate, Inc. et al., 219 U.S.P.Q. 1137, 1140 (Fed. Cir. 1983). With this authorization, applicants used the phrase "follow-up device" as described in the specification of the instant application. As seen from the above-given remarks, it is respectfully believed that the Examiner's allegation with respect to the term "follow-up device" is not accurate.

The term "making-up device" is a generic term for the German term Konfektioniervorrichtung from the provisional application of which the instant application claims the benefit of. This serves for confecting the glass fibers into bundles on spools. For purposes of the invention, it is immaterial whether a fiber bundle is wound onto one or more spools, or several bundles onto one or more spools. The only thing relevant to the invention is that the production of the bundles and the take-up onto spools occurs without feedback. That is to say,

there is no feedback onto the preceding sections of the multiple-fiber drawing installation by way of the glass fibers during the drawing process. Furthermore, as already noted in the previous responses, the making-up device is defined on page 28, lines 22-25. On page 28 it is disclosed that the making-up device includes a spool 7, which makes up or assembles the produced glass fibers or optical fibers 5 as fiber bundles 6. Therefore, the making-up device is defined in the specification. Also, patent law permits applicants to be their own lexicographers. See, i.e., Fromson v. Advance Offset Plate, Inc. et al., 219 U.S.P.Q. 1137, 1140 (Fed. Cir. 1983). With this authorization, applicants used the phrase "making-up device" as described in the specification of the instant application. As seen from the above-given remarks, it is respectfully believed that the Examiner's allegation with respect to the term "making-up device" is not accurate.

The Examiner alleges that the term bush is indefinite as to its meaning. Applicants respectfully disagree with the Examiner. More specifically, the specification explicitly discloses the "bush" on page 32, line 22 to page 35, line 9 and in Figs. 3 and 4. Furthermore, the Examiner seems to disregard applicants' previous remarks. Particularly, as stated in the previous response the term "bush" is defined as a removable lining or sleeve of metal or other material that

is <u>inserted</u> or screwed <u>into an opening</u> to limit its size, resist wear or erosion, <u>or serve as a guide</u>. Therefore, the term "bush" refers to a heated guide which is held in a matrix structure, which is exactly what is disclosed in the specification and what is shown in the drawings. Therefore, contrary to the Examiner's allegation on page 6 of the Office action, a person of ordinary skill in the art <u>would not</u> be at a complete loss in determining what is meant by the claims.

As seen from the above-given remarks, it is believed that the claims meet the requirements of 35 U.S.C. §112, second paragraph. Accordingly, the claims have not been amended to overcome the rejection.

It is accordingly believed that the claims meet the requirements of 35 U.S.C. § 112, second paragraph. Should the Examiner find any further objectionable items, counsel would appreciate a telephone call during which the matter may be resolved. The above-noted changes to the claims are provided solely for cosmetic or clarificatory reasons. The changes are not provided for overcoming the prior art nor for any reason related to the statutory requirements for a patent.

In the first paragraph on page 8 of the Office action, claims 1, 3-11, 18-19, 21-23, 27 and 29 have been rejected as being

obvious over Gouronnec (U.S. Patent No. 4,373,943) alone, or in view of Watts (U.S. Patent No. 4,204,852) and further in view of Jensen (U.S. Patent No. 5,062,876) under 35 U.S.C. § 103.

As will be explained below, it is believed that the claims were patentable over the cited art in their original form and the claims have, therefore, not been amended to overcome the references. However, in order to facilitate prosecution of the application, claim 11 and 14 have been made independent by adding subject matter of claim 1.

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful.

Claim 1 calls for, inter alia:

the matrix configuration having mutually parallel first matrix axes and mutually parallel second matrix axes disposed at an angle  $\alpha$  of less than 90° with respect to one another, and each of the first matrix axes intersecting each of the second matrix axes within a boundary of the matrix configuration, and the heating bushes being disposed at respective crossing points of the first and second axes.

The Gouronnec reference discloses a multiple fiber forming machine. Gouronnec discloses a furnace that has drawing laboratories. The furnace may have laboratories that are configured radially around a central axis in an axial symmetry, but can also have linearly arranged laboratories.

It is noted that in the amendment filed on June 12, 2006, claim 1 was amended to include the limitation that second matrix axes are mutually parallel along with the first matrix axes (likewise claims 11 and 14 also include this limitation). In the Examiner's drawing on page 3 of the Office action dated March 10, 2006, the second matrix axes are diagonal and intersect one another, thus they are not mutually parallel.

The Examiner alleges that on page 9 of the Office action that "it is noted that a regular 4 X 4 matrix reads on the claims because there are rows at 45 degree angles-such as shown in the last Office action." It is respectfully noted that the Examiner's allegation is not accurate. As noted above, claim 1 of the instant application requires that the second matrix axes are mutually parallel. The "second matrix axes" of the Examiner's drawing from the last Office action, are not mutually parallel. Therefore, the 45 degree angle shown does not meet the limitation recited in claims 1, 11, and 14 of the instant application. Accordingly, it is respectfully noted

that the Examiner's allegation with respect to the drawing in the last Office action, are not correct.

The Jensen reference discloses a bushing that has multiple tips. The heating bush according to the invention differs substantially from the tips of Jensen. Thus the present heating bush arrangement must also be distinguished from the tip arrangement according to Jensen. The term "bushing" according to Jensen appears to be derived from "ejection bushing plate". Such a "bushing plate" comprises "tips". In Jensen, completely different technical prerequisites exist, starting with the different melting processes. Therefore, the tips of Jensen are completely different than the limitation of a "heating bush" as recited in the claims of the instant application, which is a bush with at least one heating device. Accordingly, Jensen does not disclose a matrix configuration as recited in claim 1 of the instant application.

Furthermore, it is noted that the Examiner's comments on page 6 of the Office action that "the claims need to be interpreted in the glass-manufacturing art-which as (sic) a long history of referring to a bushing as is done in Jensen", is entirely correct when considering the prior art. Accordingly, the Examiner's remarks support the fact that Jensen does not

disclose a heating bush in a matrix configuration, as recited in the claims of the instant application.

The Watts reference does not disclose the any matrix configuration the apparatus for producing a glass fiber bundle.

It is a requirement for a prima facie case of obviousness, that the prior art references must teach or suggest all the claim limitations.

The references do not show or suggest the matrix configuration having mutually parallel first matrix axes and mutually parallel second matrix axes disposed at an angle  $\alpha$  of less than 90° with respect to one another, and each of the first matrix axes intersecting each of the second matrix axes within a boundary of the matrix configuration, and the heating bushes being disposed at respective crossing points of the first and second axes, as recited in claim 1 of the instant application.

The Gouronnec reference discloses heating laboratories that are disposed in an axial symmetry or in a linear fashion. Gouronnec does not disclose mutually parallel first and second matrix axes disposed at an angle of less than 90° with respect to one another and heating bushes being disposed at respective

crossing points of the first and second axes. This is contrary to the invention of the instant application as claimed, in which the matrix configuration have mutually parallel first matrix axes and mutually parallel second matrix axes disposed at an angle  $\alpha$  of less than 90° with respect to one another, and each of the first matrix axes intersect each of the second matrix axes within a boundary of the matrix configuration, and the heating bushes are disposed at respective crossing points of the first and second axes.

As seen from the above-given remarks, the Jensen and Watts references do not disclose a matrix configuration for heating bushes. Therefore, Jensen and Watts do not make up for the deficiencies of Gouronnec.

The references applied by the Examiner do not teach or suggest all the claim limitations. Therefore, it is believed that the Examiner has not produced a prima facie case of obviousness.

Since claim 1 is believed to be allowable, dependent claims 3-10, 18-19, 21-23, 27 and 29 are believed to be allowable as well.

The following remarks pertain to claim 11.

On page 9 of the Office action, the Examiner alleges that "claims 9-11, 18-19. 21-23, 29 and 27 would have been obvious for the reason of record. Official Notice has been taken previously. Since there has been no traversal, such is now being treated as admitted prior art." Applicants respectfully disagree with the Examiner. More specifically, as noted in the prior responses claim 1 was believed to be allowable. Therefore, applicants did not comment on the Examiner's remarks. However, since claims 11 and 14 were made independent applicants comment as follows.

Applicants do traverse the Examiner's Official Notice. Official Notice is not prior art for the following reasons. The Examiner's remarks, which pertain to the disclosure of Gouronnec in column 2, lines 57-60, pertain to furnaces and not to heating bushes, as recited in the claims of the instant application. The construction of the heating bushes is entirely different than the furnace that is disclosed in Gouronnec. Therefore, the Examiner's comments with respect to diffusers are not applicable when considering the heating bushes of the present invention, Accordingly, the Examiner unfounded allegations do not serve as prior art. Furthermore, contrary to the Examiner's allegation on page 9 of the Office action dated October 13, 2005, there is no "receptor" on line

59 of column 2 in Gouronnec. Therefore, the Official Notice does not have any merit and is not admitted prior art.

Claim 11 calls for, inter alia:

a fiber furnace having heating bushes disposed as a matrix configuration for simultaneously receiving a number of preforms, each of the heating bushes having at least one heating element and each of the heating bushes having at least one diffuser provided between the at least one heating element and a respective one of the preforms for diffusing a heating radiation, the matrix configuration having mutually parallel first matrix axes and mutually parallel second matrix axes disposed at an angle  $\alpha$  of less than 90° with respect to one another.

It is a requirement for a *prima facie* case of obviousness, that the prior art references must teach or suggest <u>all</u> the claim limitations.

The references do not show or suggest a fiber furnace having heating bushes disposed as a matrix configuration for simultaneously receiving a number of preforms, each of the heating bushes having at least one heating element and each of the heating bushes having at least one diffuser provided between the at least one heating element and a respective one of the preforms for diffusing a heating radiation, the matrix

configuration having mutually parallel first matrix axes and mutually parallel second matrix axes disposed at an angle  $\alpha$  of less than 90° with respect to one another, as recited in claim 11 of the instant application.

The Gouronnec reference discloses a heating furnace having heating laboratories that are disposed in an axial symmetry or in a linear fashion. Gouronnec does not disclose that a furnace has individual heating bushing each having a heating element and a diffuser. This is contrary to the invention of the instant application as claimed, in which a fiber furnace has heating bushes disposed as a matrix configuration for simultaneously receiving a number of preforms, each of the heating bushes has at least one heating element and each of the heating bushes has at least one diffuser provided between the at least one heating element and a respective one of the preforms for diffusing a heating radiation, the matrix configuration has mutually parallel first matrix axes and mutually parallel second matrix axes disposed at an angle  $\alpha$  of less than 90° with respect to one another.

The Jensen and Watts references do not disclose a matrix configuration for heating bushes which each have a heating element and a diffuser. Therefore, Jensen and Watts do not make up for the deficiencies of Gouronnec.

The references applied by the Examiner <u>do not</u> teach or suggest all the claim limitations. Therefore, it is believed that the Examiner has not produced a *prima facie* case of obviousness.

In the second paragraph on page 7 of the Office action, claims 1 and 12 have been rejected as being obvious over Sanghera et al. (U.S. Patent No. 5,735,927) (hereinafter "Sanghera") in view of Gouronnec (U.S. Patent No. 4,373,943) Watts (U.S. Patent No. 4,204,852), Jensen (U.S. Patent No. 5,062,876), and Ishihara et al. (U.S. Patent Publication No. 2002/0078715 A1) (hereinafter "Ishihara") under 35 U.S.C. § 103.

The Sanghera reference discloses a method for producing core/clad glass optical <u>preforms</u> using hot isostatic pressing. Sanghera does not disclose a matrix configuration for disposing heating bushings.

The Ishihara reference discloses an apparatus for drawing optical fiber. Ishihara does not disclose a matrix configuration for disposing heating bushings.

It is a requirement for a prima facle case of obviousness, that the prior art references must teach or suggest <u>all</u> the claim limitations.

The references do not show or suggest the matrix configuration having mutually parallel first matrix axes and mutually parallel second matrix axes disposed at an angle  $\alpha$  of less than 90° with respect to one another, and each of the first matrix axes intersecting each of the second matrix axes within a boundary of the matrix configuration, and the heating bushes being disposed at respective crossing points of the first and second axes, as recited in claim 1 of the instant application.

As seen from the above-given remarks with respect to the rejection on page 8 of the Office action, the Gouronnec, Jensen and Watts references do not disclose a matrix configuration for heating bushes.

As seen from the above-given remarks, Sanghera and Ishihara do not disclose a matrix configuration for heating bushings.

Therefore, Sanghera and Ishihara do not make up for the deficiencies of Gouronnec, Jensen and Watts.

The references applied by the Examiner do not teach or suggest all the claim limitations. Therefore, it is believed that the Examiner has not produced a prima facie case of obviousness.

In the third paragraph on page 10 of the Office action, claims 1, 11, 13-17, and 24 have been rejected as being obvious over Sanghera (U.S. Patent No. 5,735,927) in view of Gouronnec (U.S. Patent No. 4,373,943), Watts (U.S. Patent No. 4,204,852) and Jensen (U.S. Patent No. 5,062,876) under 35 U.S.C. § 103.

The Sanghera reference discloses a method for producing core/clad glass optical preforms using hot isostatic pressing. Sanghera does not disclose a matrix configuration for disposing heating bushings. Sanghera does not disclose that heating bushings have a heating element and a diffuser.

It is a requirement for a prima facie case of obviousness, that the prior art references must teach or suggest all the claim limitations.

The references do not show or suggest the matrix configuration having mutually parallel first matrix axes and mutually parallel second matrix axes disposed at an angle  $\alpha$  of less than 90° with respect to one another, and each of the first matrix axes intersecting each of the second matrix axes within a boundary of the matrix configuration, and the heating bushes being disposed at respective crossing points of the first and second axes, as recited in claim 1 of the instant application.

As seen from the above-given remarks with respect to the rejection on page 8 of the Office action, the Gouronnec, Jensen and Watts references do not disclose a matrix configuration for heating bushes.

As seen from the above-given remarks, Sanghera does not disclose a matrix configuration for heating bushings.

Therefore, Sanghera does not make up for the deficiencies of Gouronnec, Jensen and Watts.

The references applied by the Examiner do not teach or suggest all the claim limitations. Therefore, it is believed that the Examiner has not produced a prima facie case of obviousness.

Since claim 1 is believed to be allowable, dependent claim 24 is believed to be allowable as well.

The following further remarks pertain to claim 11.

It is a requirement for a prima facie case of obviousness, that the prior art references must teach or suggest <u>all</u> the claim limitations.

The references do not show or suggest a fiber furnace having heating bushes disposed as a matrix configuration for

simultaneously receiving a number of preforms, each of the heating bushes having at least one heating element and each of the heating bushes having at least one diffuser provided between the at least one heating element and a respective one of the preforms for diffusing a heating radiation, the matrix configuration having mutually parallel first matrix axes and mutually parallel second matrix axes disposed at an angle  $\alpha$  of less than 90° with respect to one another, as recited in claim 11 of the instant application.

As seen above with the regard to the comments made with respect to the rejection on page 8 of the Office action, Gouronnec, Jensen and Watts do not disclose the heating bushings as recited above.

The Sanghera reference does not disclose a matrix configuration for heating bushes which each have a heating element and a diffuser. Therefore, Sanghera does not make up for the deficiencies of Gouronnec, Jensen, and Watts.

The references applied by the Examiner do not teach or suggest all the claim limitations. Therefore, it is believed that the Examiner has not produced a prima facie case of obviousness.

Since claim 11 is believed to be allowable, dependent claims 13 and 16 are believed to be allowable as well.

The following further remarks pertain to claim 14.

Claim 14 calls for, inter alia:

each of the heating bushes having a respective flow device configured for creating a laminar air flow in each of the heating bushes.

The Examiner alleges on page 10 of the Office action that "providing laminar flow is a method step and not structure." Applicants respectfully disagree with the Examiner's allegation. More specifically, the claim recites that the flow device is configured for creating a laminar air flow in each of the heating bushings. Contrary to the Examiner's comments, the claim does not recite providing a laminar air flow. Instead, the claims require that the flow device is configured such that a laminar air flow is created. The limitation that the flow device is configured for creating a laminar air flow is a structural limitation. Accordingly, it is respectfully noted that the Examiner's allegation that pertain to the limitation being a method step is not accurate.

It is respectfully noted that the Examiner's allegation on page 10 of the Office action that "Sanghera reads on the invention because it provides an opening", is not correct. More specifically, Sanghera does not disclose that the opening is configured for creating a laminar flow. It is true that the flow would be based on the size of the fiber/preform and other parameters. However, Sanghera does not consider this because Sanghera is completely silent with respect to a laminar air flow in a heating bushing.

It is a requirement for a *prima facie* case of obviousness, that the prior art references must teach or suggest <u>all</u> the claim limitations.

The references do not show or suggest each of the heating bushes having a respective flow device configured for creating a laminar air flow in each of the heating bushes, as recited in claim 14 of the instant application.

Gouronnec, Jensen, and Watts are all silent with respect to a heating bushing having a flow device that is configured to create a laminar air flow.

As seen from the above given remarks, the Sanghera reference does not disclose a flow device that is configured for

creating a laminar air flow in a heating busing. This is contrary to the invention of the instant application as claimed, in which each of the heating bushes have a respective flow device configured for creating a laminar air flow in each of the heating bushes.

The references applied by the Examiner <u>do not</u> teach or suggest all the claim limitations. Therefore, it is believed that the Examiner has not produced a *prima facie* case of obviousness.

Since claim 14 is believed to be allowable, dependent claims
15 and 17 are believed to be allowable as well.

In the second paragraph on page 11 of the Office action, claims 1, 18, and 20 have been rejected as being obvious over Oh (U.S. Patent No. 6,053,013) in view of Gouronnec (U.S. Patent No. 4,373,943), Watts (U.S. Patent No. 4,204,852) and Jensen (U.S. Patent No. 5,062,876) under 35 U.S.C. § 103.

The Oh reference discloses an apparatus for overcladding optical fiber perform rod and optical fiber drawing method. Oh does not disclose a matrix configuration for disposing heating bushings.

It is a requirement for a prima facie case of obviousness, that the prior art references must teach or suggest <u>all</u> the claim limitations.

The references do not show or suggest the matrix configuration having mutually parallel first matrix axes and mutually parallel second matrix axes disposed at an angle  $\alpha$  of less than 90° with respect to one another, and each of the first matrix axes intersecting each of the second matrix axes within a boundary of the matrix configuration, and the heating bushes being disposed at respective crossing points of the first and second axes, as recited in claim 1 of the instant application.

As seen from the above-given remarks with respect to the rejection on page 8 of the Office action, the Gouronnec, Jensen and Watts references do not disclose a matrix configuration for heating bushes.

As seen from the above-given remarks, Oh does not disclose a matrix configuration for heating bushings. Therefore, Oh does not make up for the deficiencies of Gouronnec, Jensen and Watts.

The references applied by the Examiner do not teach or suggest all the claim limitations. Therefore, it is believed that the Examiner has not produced a *prima facie* case of obviousness.

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Since claim 1 is believed to be allowable, dependent claims 18 and 20 are believed to be allowable as well.

In the penultimate paragraph on page 11 of the Office action, claims 25 and 26 have been rejected as being obvious over Lee (U.S. Patent Publication No. 2003/0079501 Al) or Gouronnec (U.S. Patent No. 4,373,943), Watts (U.S. Patent No. 4,204,852) and Jensen (U.S. Patent No. 5,062,876) in view of Holschlag (U.S. Patent No. 3,304,163) and optionally Watts (U.S. Patent No. 4,204,852) under 35 U.S.C. § 103. Neither Holschlag nor Watts make up for the deficiencies of Lee, Gouronnec, Jensen and Watts. Since claim 1 is believed to be allowable, dependent claims 25 and 26 are believed to be allowable well.

Furthermore, it is not seen how the Examiner rejects claims 25 and 26 when independent claim 1 was not rejected over Lee.

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claims 1, 11, or 14. Claims 1, 11, and 14 are, therefore, believed to be patentable over

the art and since all of the dependent claims are ultimately dependent on claims 1, 11, or 14, they are believed to be patentable as well.

In view of the foregoing, reconsideration and allowance of claims 1, 2-27, and 29-45 are solicited

In the event the Examiner should still find any of the claims to be unpatentable, counsel respectfully requests a telephone call so that, if possible, patentable language can be worked out.

If an extension of time for this paper is required, petition for extension is herewith made.

Please charge any other fees which might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner Greenberg Stemer LLP, No. 12-1099.

Respectfully submitted,

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